

List of Publications

Book Chapters:

Zhang, R. 2015, Atlantic Meridional Overturning Circulation (AMOC) and Climate, Chapter 8 in the book “Climate Change: Multidecadal and Beyond”, World Scientific Series on Asia-Pacific Weather and Climate, Vol. 6, pp125-140.

Keenlyside N. S., J. Ba, J. Mecking, N. Omrani, M. Latif, **R. Zhang**, R. Msadek, 2015, North Atlantic Multi-Decadal Variability –Mechanisms and Predictability, Chapter 9 in the book “Climate Change: Multidecadal and Beyond”, World Scientific Series on Asia-Pacific Weather and Climate, Vol. 6, pp 141-158.

Peer-Reviewed Publications:

Zhang J. and **R. Zhang**, 2015, On the evolution of Atlantic Meridional Overturning Circulation Fingerprint and implications for decadal predictability in the North Atlantic, Geophys. Res. Lett., 42, doi:10.1002/2015GL064596.

Zhang, R. 2015, Mechanisms for low frequency variability of summer Arctic sea ice extent, PNAS, 112, doi: 10.1073/pnas.1422296112.

Griffies, S. M., M. Winton, W. G. Anderson, R. Benson, T. L Delworth, C. O. Dufour, J. P. Dunne, P. Goddard, A. K. Morrison, A. T. Wittenberg, J. Yin, and **R. Zhang**, 2015, Impacts on ocean heat from transient mesoscale eddies in a hierarchy of climate models. Journal of Climate, 28, DOI:10.1175/JCLI-D-14-00353.1.

Msadek, R., T. L Delworth, A. Rosati, W. G. Anderson, G. A. Vecchi, Y.-S. Chang, K. W. Dixon, R. Gudgel, W. F. Stern, A. T. Wittenberg, X.-Q. Yang, F. Zeng, **R. Zhang**, and S. Zhang, 2014: Predicting a Decadal Shift in North Atlantic Climate Variability Using the GFDL Forecast System. Journal of Climate, 27, DOI:10.1175/JCLI-D-13-00476.1.

Lynch-Stieglitz, J, M Schmidt, L G Henry, W B Curry, L C Skinner, S Mulitza, **R. Zhang**, and P Chang, 2014: Muted change in Atlantic overturning circulation over some glacial-aged Heinrich events. Nature Geoscience, 7(2), DOI:10.1038/ngeo2045.

Vecchi, G. A., R. Msadek, W. G Anderson, Y-S Chang, T. L. Delworth, K. W Dixon, R. Gudgel, A. Rosati, W. F Stern, G. Villarini, A. T. Wittenberg, X. Yang, F. Zeng, **R. Zhang**, and S. Zhang, 2014: Reply to Comment on Multi-year Predictions of North Atlantic Hurricane Frequency: Promise and limitations. *Journal of Climate*, 27(1), DOI:10.1175/JCLI-D-13-00381.1.

Zhang, R., and T. R. Knutson, 2013: The role of global climate change in the extreme low summer Arctic sea ice extent in 2012 [in “Explaining Extreme Events of 2012 from a Climate Perspective”]. *Bull. Amer. Meteor. Soc.*, 94 (9).

Zhang, R., T. L Delworth, R Sutton, D Hodson, K. W Dixon, I. M. Held, Y. Kushnir, J. Marshall, Y. Ming, R. Msadek, J. Robson, A. Rosati, M. Ting, and G. A. Vecchi, 2013, Have Aerosols Caused the Observed Atlantic Multidecadal Variability? *Journal of the Atmospheric Sciences*, 70, DOI:10.1175/JAS-D-12-0331.1.

Vecchi, G. A., R. Msadek, W. G Anderson, Y-S Chang, T. L Delworth, K. W Dixon, R. Gudgel, A. Rosati, W. F Stern, G Villarini, A. T Wittenberg, X. Yang, F. Zeng, **R. Zhang**, and S. Zhang, 2013, Multi-year Predictions of North Atlantic Hurricane Frequency: Promise and limitations. *Journal of Climate*. 26, DOI:10.1175/JCLI-D-12-00464.1.

Leech, P J., J Lynch-Stieglitz, and **R. Zhang**, 2013, Western Pacific Thermocline Structure and the Pacific Marine Intertropical Convergence Zone during the Last Glacial Maximum. *Earth and Planetary Science Letters*, 363, DOI:10.1016/j.epsl.2012.12.026.

Lee, H C., T. L Delworth, A. Rosati, **R. Zhang**, W. G. Anderson, F. Zeng, C. A Stock, A. Gnanadesikan, K. W Dixon, and S. M Griffies, 2013, Impact of climate warming on upper layer of the Bering Sea. *Climate Dynamics*, 40, DOI:10.1007/s00382-012-1301-8.

Yang, X., A. Rosati, S. Zhang, T. L Delworth, R. Gudgel, **R. Zhang**, G. A Vecchi, W. G Anderson, Y-S Chang, T. DelSole, K. W Dixon, R. Msadek, W. F Stern, A. T Wittenberg, and F. Zeng, 2013, A predictable AMO-like pattern in GFDL’s fully-coupled ensemble initialization and decadal forecasting system. *Journal of Climate*, 26, DOI:10.1175/JCLI-D-12-00231.1.

Delworth, T. L., A. Rosati, W. G Anderson, A. Adcroft, V. Balaji, R. Benson, K. W. Dixon, S. M. Griffies, H C Lee, R. C Pacanowski, G. A Vecchi, A. T Wittenberg, F. Zeng, and **R. Zhang**, 2012, Simulated climate and climate change in the GFDL CM2.5 high-resolution coupled climate model. *Journal of Climate*. 25, DOI:10.1175/JCLI-D-11-00316.1

Vecchi, G. A., R. Msadek, T. L Delworth, K. W. Dixon, E Guilyardi, E Hawkins, A R Karspeck, J Mignot, J Robson, A. Rosati, and **R. Zhang**, 2012: Comment on "Multiyear Prediction of Monthly Mean Atlantic Meridional Overturning Circulation at 26.5°N". *Science*, 338(6107), DOI:10.1126/science.1222566.

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Mahajan, S, **R. Zhang**, and T. L Delworth, 2011, Impact of the Atlantic Meridional Overturning Circulation (AMOC) on Arctic surface air temperature and sea-ice variability. *Journal of Climate*. 24, DOI:10.1175/2011JCLI4002.1.

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Chen, M-T, X. Lin , Y. Chang , Y. Chen , L. Lo , C. Shen , Y. Yokoyama , D. W. Oppo , W. Thompson, and **R. Zhang**, 2010, Dynamic millennial-scale climate changes in the Northwestern Pacific over the past 40,000 years. *Geophysical Research Letters*, 37, L23603, doi:10.1029/2010GL045202.

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Zhang, R., S M Kang, and I. Held, 2010, Sensitivity of climate change induced by the weakening of the Atlantic Meridional Overturning Circulation to cloud feedback. *Journal of Climate*, 23, doi:10.1175/2009JCLI3118.1.

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Zhang, R., and T. L Delworth, 2009: A new method for attributing climate variations over the Atlantic Hurricane Basin's main development region. *Geophysical Research Letters*, 36, L06701, doi:10.1029/2009GL037260.

Chang, P, **R. Zhang**, W Hazeleger, C Wen, X Wan, L Ji, R J Haarsma, W-P Breugem, and H. Seidel, 2008: Oceanic link between abrupt changes in the North Atlantic Ocean and the African monsoon. *Nature Geoscience*, 1(7), 444-448.

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Schmittner, A, E D Galbraith, S W Hostetler, T F Pedersen, and **R. Zhang**, 2007: Large fluctuations of dissolved oxygen in the Indian and Pacific oceans during Dansgaard-Oeschger oscillations caused by variations of North Atlantic Deep Water subduction. *Paleoceanography*, 22, PA3207, doi:10.1029/2006PA001384.

Zhang, R., T. L Delworth, and I. Held, 2007: Can the Atlantic Ocean drive the observed multidecadal variability in Northern Hemisphere mean temperature? *Geophysical Research Letters*, 34, L02709, doi:10.1029/2006GL028683.

Zhang, R., 2007: Anticorrelated multidecadal variations between surface and subsurface tropical North Atlantic. *Geophysical Research Letters*, 34, L12713, doi:10.1029/2007GL030225.

Zhang, R., and G. K Vallis, 2007: The role of bottom vortex stretching on the path of the North Atlantic Western Boundary Current and on the Northern Recirculation Gyre. *Journal of Physical Oceanography*, 37(8), 2053-2080.

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Zhang, R., and T. L. Delworth, 2005: Simulated Tropical Response to a Substantial Weakening of the Atlantic Thermohaline Circulation. Letter in *Journal of Climate*, 18, 1853-1860.

Griffies, S. M., A. Gnanadesikan, K. W. Dixon, J. P. Dunne, R. Gerdes, M. J. Harrison, A. Rosati, J. L. Russell, B. L. Samuels, M. J. Spelman, M. Winton, and **R. Zhang**, 2005: Formulation of an ocean model for global climate simulations. *Ocean Science*, 1, 45-79.

Gnanadesikan, A., K. W. Dixon, S. M. Griffies, V. Balaji, M. Barreiro, J. A. Beesley, W. F. Cooke, T. L. Delworth, R. Gerdes, M. J. Harrison,

I. M. Held, W. J. Hurlin, H. Lee, Z. Liang, G. Nong, R. C. Pacanowski, A. Rosati, J. Russell, B. L. Samuels, Q. Song, M. J. Spelman, R. J. Stouffer, C. O. Sweeney, G. Vecchi, M. Winton, A. T. Wittenberg, F. Zeng, **R. Zhang**, 2006. GFDL's CM2 Global Coupled Climate Models. Part II: The Baseline Ocean Simulation. *Journal of Climate*, 19, 675-697.

Delworth, T. L., A. J. Broccoli, A. Rosati, R. J. Stouffer, V. Balaji, J. A. Beesley, W. F. Cooke, K. W. Dixon, J. Dunne, K. A. Dunne, J. W. Durachta, K. L. Findell, P. Ginoux, A. Gnanadesikan, C. T. Gordon, S. M. Griffies, R. Gudgel, M. J. Harrison, I. M. Held, R. S. Hemler, L. W. Horowitz, S. A. Klein, T. R. Knutson, P. J. Kushner, A. R. Langehorst, H. Lee, S. Lin, J. Lu, S. L. Malyshev, P. C. D. Milly, V. Ramaswamy, J. Russell, M. D. Schwarzkopf, E. Shevliakova, J. J. Sirutis, M. J. Spelman, W. F. Stern, M. Winton, A. T. Wittenberg, B. Wyman, F. Zeng, **R. Zhang**, 2006. GFDL's CM2 Global Coupled Climate Models. Part I: Formulation and Simulation Characteristics. *Journal of Climate*, 19, 643-674.

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Water: The Liquid-liquid Critical Point Hypothesis, *Physica A*, 236: (1-2) 19-37.

Non Peer-Reviewed Publications:

- Danabasoglu, G., R. Curry, P. Heimbach, Y. Kushnir, C. Meinen, R. Msadek, M. Patterson, L. Thompson, S. Yeager, and **R. Zhang**, 2014: 2013 US AMOC Science Team Annual Report on Progress and Priorities. Report 2014-4, US CLIVAR Project Office, 162 pp.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y. Kwon, M. Patterson, S. Lozier, J. Wills, **R. Zhang**, 2013, Fifth Annual U.S. AMOC Report, U.S. AMOC: Atlantic Meridional Overturning Circulation, Report 2013-2, U.S. CLIVAR Project Office, Washington, DC 20006, 102 pp.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y. Kwon, M. Patterson, S. Lozier, J. Wills, **R. Zhang**, 2012, Fourth Annual Progress Report for a SOST Near-Term Priority Assessing Meridional Overturning Circulation Variability: Implications for Rapid Climate Change, Report 2012-1, U.S. CLIVAR Office, Washington, DC 20006, 100 pp.
- Johns, W., P. Chang, G. Danabasoglu, P. Heimbach, Y. Kushnir, Y. Kwon, M. Patterson, S. Lozier, J. Wills, **R. Zhang**, 2011, Third Annual Progress Report for a JSOST Near-Term Priority Assessing Meridional Overturning Circulation Variability: Implications for Rapid Climate Change, U.S. CLIVAR Office, Washington, DC 20006, 66 pp.
- Delworth, T. L., P. U. Clark, M. Holland, W. E. Johns, T. Kuhlbrodt, J. Lynch-Stieglitz, C. Morrill, R. Seager, A. J. Weaver, and **R. Zhang**, 2008: The potential for abrupt change in the Atlantic Meridional Overturning Circulation In *Abrupt Climate Change: Final Report, Synthesis & Assessment Product 3.4*, CSSP, Reston, VA, U.S. Geological Survey, 117-162.
- Delworth, T. L., **R. Zhang**, and M E Mann, 2007: Decadal to centennial variability of the Atlantic from observations and models In *Ocean Circulation: Mechanisms and Impacts, Geophysical Monograph Series 173*, Washington, DC, American Geophysical Union, 131-148.
- Zhang, R.**, 2006: How Cold Were the Tropics and Subtropics at the Last Glacial Maximum? *Quaternary Science Reviews*, 25, 1150-1151.